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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/743,591 | 12/22/2003 | Jeff Fries | 133197/GETS 5319.1 | 7577 |

321 7590 08/28/2006

SENNIGER POWERS
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS, MO 63102

EXAMINER

NGUYEN, THU V

ART UNIT PAPER NUMBER

3661

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/743,591 | FRIES ET AL. | |
| | Examiner | Art Unit | |
| | Thu Nguyen | 3661 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9, 23-25 is/are rejected.
- 7) ☐ Claim(s) 6, 10-17, 26 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/28/06 & 12/22/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/27/04 & 12/22/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The response to the restriction requirement filed on June 9, 2006 has been entered. By this response, claims 18-22 have been canceled. Upon consideration of applicant comment, the examiner withdraws restriction requirement on claims 26-27 and will examine claim 26-27 in this office action. Claims 1-17, 23-27 are now pending in the application.

Specification

The disclosure is objected to because of the following informalities:

The amendment filed on February 28, 2006 request replacement of paragraph [0077]. However, it seems it is the paragraph [0074] in the original specification that should be replaced.

Claim Objections

1. Claims 25, 27 are objected to because of the following informalities:
 - a. In claim 25, line 5, the claimed "impedance of the when" should be corrected to "impedance of the track when"
 - b. In claim 27, line 3, the claimed "first signal" should be corrected to "second signal".

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claims 3, 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. In claim 3, line 1, the claimed "the DSP" lacks of antecedent basis.
- b. In claim 11, lines 1-2, the claimed "a first signal processor" and the claimed "a second signal processor" is ambiguous because it is not clear if either the first or the second signal processor should be signal processor taught in claim 1, line 17, or both the first and second signal processors should be different processors from the processor in claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farnham et al (US 4,581,700).

As per claim 1-2, 23, Farnham discloses a train detection system, the system comprises: a first transmitter 64 (fig.1a) transmitting first signal at a predetermined magnitude and frequency (col.5, lines 16-32); a receiver 80 (fig.1a) receiving the first signal (col.4, lines 14-25); a first data acquisition 84 (fig.1a) for generating first multiplex analog signal (col.4, lines 39-42, lines 53-65); a first A/D converter 94 (fig.1a); a processor for processing the first signal to

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determine amplitude of the first signal (col.7, lines 61-68; col.8, lines 1-3). Farnham does not explicitly disclose determining the frequency of the signal. However, Farnham teaches determining the magnitude and the phase of the first signal (col.7, lines 61-68, col.8, lines 1-3), it would have been well known that the phase represents the frequency of a signal, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the frequency from the known phase of the signal taught by Farnham in order to facilitate determining delay between transmitting and receiving signals.

As per claim 3-4, Farnham teaches producing an approach sine wave signal (col.5, lines 33-37); providing necessary gain control for amplification of the signal (col.9, lines 3-7). Moreover, implementing the sine wave generator at a specific digital signal processor having interface with the transmitter would have been obvious matter of design choice. Furthermore, with respect to claim 4, providing sharper band roll off in order to enhance signal recognition and processing accuracy would have been well known objective to any signal processing system.

As per claim 5, Farnham teaches filtering the signals (col.7, lines 56-60), moreover, using finite impulse response digital filter or infinite impulse response digital filter for processing digital signals would have been well known and obvious matter of design choice from known filters available in the digital signal processing technology.

As per claim 7, Farnham teaches filtering the first signal at the processor (col.7, lines 56-60) and using a bandpass filter for filtering signals (col.5, lines 55-60). Moreover, using

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bandpass filter to select signals that satisfy certain frequency range for further processing would have been both well known and obvious matter of design choice.

As per claim 24, Farnham discloses determining the speed of the train (col.7, lines 61-66). Furthermore, determining the speed of the train as a function of the rate of change of impedance would have been well known.

As per claim 25, refer to claim 7 above.

6. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farnham et al (US 4,581,700) in view of Moorey (US 4,107,616).

As per claim 8-9, Moorey teaches a receiver for receiving a second signal generated by adjacent railroad track of second operating frequency (col.5, lines 26-44). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a single receiver taught by Farnham for receiving different signals of different operating frequencies as taught by Moorey in order to simplified implementation of signals detecting devices in detecting train position on different sections of a railway.

Allowable Subject Matter

7. Claims 6, 10-17 and 26-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Prior arts of record do not disclose a system and a method for detecting the presence and/or position of a railway vehicle taught in claims 1 or 23 in combination with claims 6 or 7-8 and 10, or 26 in which a first filter is coupled to the first feedback circuit for filtering the detected first transmitted voltage signal, the detected first transmitted current signal and the detected first received voltage signal, the filtered signals are multiplexed by a first multiplexer to generate the first multiplexed analog signal for the processor to calculate the impedance in the approach detection area. The system taught in claims 1, 7-8 and 10 includes a second data acquisition unit coupled to the second transmitter and the receiver to generate second multiplexed analog signals representing the transmitted second signal and the received second signal. The method arrived from the combined claims 23 and 26 teaches the operating method using the system taught in the combined claims 1, 7-8, and 10.

Remark

- a. Since the combined claims 1, 7-8 and 10 are allowable, claim 11 is allowable when the limitations taught in claims 7-8 and 10 are incorporated to claim 1, restriction with respect to claim 11 will be withdrawn when claims 7-8 and 10 are incorporated to independent claim 1.
- b. Although the canceled claims 18-22 direct to a different embodiment, claim 18 is found including all limitations taught in claim 1 together with allowable claims 7 and 10 and further includes claim 11 which the restriction requirement is withdrawn as noted above, restriction requirement applied to claims 18-22 is herein withdrawn. The applicant should reinstate claims 18-22 (which should be numbered as claims 28-32)

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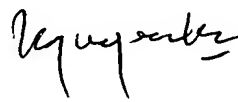
should applicant is still interested in the claimed embodiment. Double patenting shall apply should the applicant seek patentability of claim 18-22 in a divisional application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (571) 272-6967. The examiner can normally be reached on T-F (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

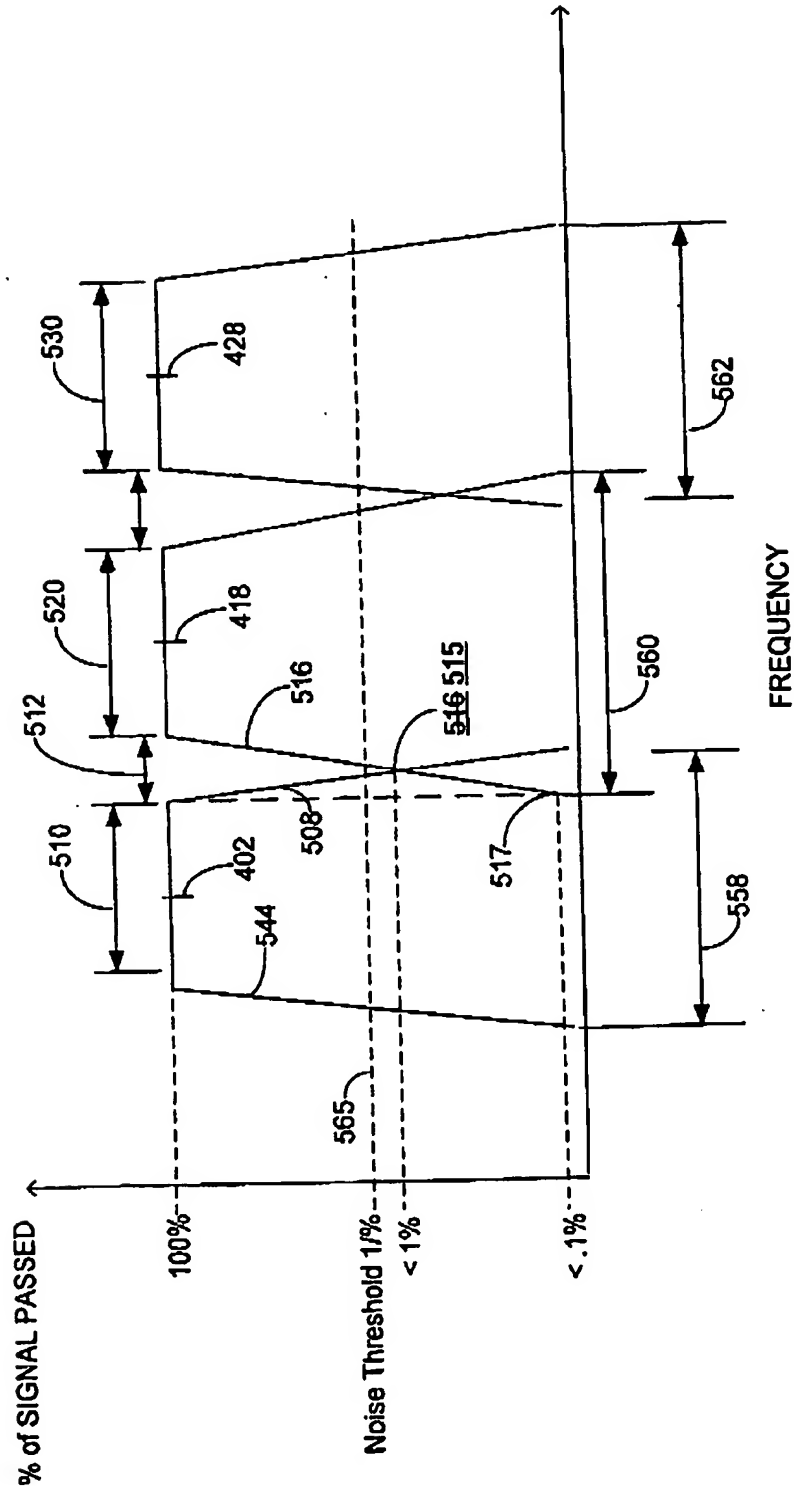
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August 19, 2006


THU V. NGUYEN
PRIMARY EXAMINER

Appl. No. 10/743,591
 Amdt Dated Feb. 28, 2006
 Reply to Office action of Jan. 31, 2006
 Annotated Sheet Showing Changes
 5/7

FIG. 5



drawing correction approved
 ntu 8/18/06